REMARKS

Summary of the Amendment

Upon entry of the Listing of Claims, claim 1 will have been amended, claim 7 and claims 36 – 38, directed to the non-elected invention, will have been canceled without prejudice or disclaimer, and new claims 39 – 41 will have been entered for consideration by the Examiner. Accordingly, claims 1 – 6, 8 – 35, and 39 – 41 remain pending. However, as the Examiner has withdrawn claims 33 – 35, directed to the non-elected invention, from further consideration, only claims 1 – 6, 8 – 32 and 39 – 41 are currently under consideration by the Examiner.

By this amendment, claim 1 is amended to include the limitations of claim 7. New claim 39 has been added with the limitations of original claim 5 in independent form. New claim 40 corresponds to original claim 7 and new claim 41 corresponds to original claim 8.

Summary of the Office Action

In the instant Office Action, the Examiner has rejected claims 1 – 32 over the art of record. Moreover, claims 33 – 35, directed to the non-elected invention, have been withdrawn from consideration. By the present remarks, Applicants submit that all the rejections have been overcome, and respectfully request reconsideration of the outstanding Office Action and allowance of the present application.

Traversal of Drawing Objections

Applicants traverse the objection to the drawings under 37 C.F.R. 1.83(a) for failing to show every feature of the invention specified in the claims. The Examiner asserts that the drawings do not show a wire woven in the belt, a three-dimensional

image, a three-dimensional grid, a three-dimensional waterfall diagram and a trigger sensor on each side of the belt. Applicants respectfully traverse the objections.

With regards to the wire woven in the belt, Applicants submit that this is shown in Figure 1. The specification states the belt may include an optical marking and the optical marking may include a wire woven into the belt [paragraph 0042]. As the specification identifies element 20 as the marking [paragraph 0063], and as the marking may be a woven wire, Applicants submit that the woven wire is represented in the original figures.

With regards to the three-dimensional image, the three-dimensional grid and the three-dimensional waterfall diagram, Applicants respectfully traverse the objection. Applicants submit that Figure 2 discloses a two-dimensional plot of felt property with three variables (full length, felt width and color/property value), wherein full length and felt width are the x and y axes, respectively, and the color/property value scale is shown, depicting on the plot an extent of the color/property. The figure also shows the color scale, in which a change in color represents an amplitude change. This type of plot is generally known to those ordinarily skilled in the art as a waterfall diagram, and Applicants submit that one of ordinary skill in the art would recognize that this two-dimensional plot could be depicted as a three-dimensional plot by simply using the specific color/property values in lieu of color change on a z-axis. Moreover, this three-dimensional plot would be a three-dimensional grid or a three-dimensional waterfall diagram.

Therefore, Applicants submit that while a three-dimensional drawing *per se* is not illustrated, the original drawing provides sufficient support for a three-dimensional

figure, and a detailed illustration is not essential for a proper understanding of the invention.

With regards to a trigger sensor on each side of the belt, the Examiner acknowledges that a trigger sensor (22) is depicted on one side of the belt in Figure 1. Applicants submit that a drawing depicting a second trigger sensor on the other side of the belt is not so complex as to require detailed illustration for a proper understanding of the invention.

Accordingly, Applicants respectfully request that the Examiner withdraw the drawing objections, and indicate the drawings are acceptable.

Traversal of Rejection under 35 U.S.C. § 102(e)

Applicants traverse the rejection of claims 1 – 25, 27 and 32 under 35 U.S.C. § 102(e) as being anticipated by US 6,849,851 B2 issued to Komulainen et al. [hereinafter KOMULAINEN].

To anticipate a claim, each and every element as set forth in the claim must be found either expressly or inherently described, in a single prior art reference. MPEP § 2131. Applicant submits that KOMULAINEN does not show each and every feature of the claimed invention.

Independent Claim 1

The present invention generally relates to a process and device for monitoring the condition of a rotating belt, used in a paper or cardboard machine. More specifically, claim 1 recites, in pertinent part:

> recording data related to a condition of the belt; and
> creating an at least two-dimensional image of the belt condition from the recorded condition data,

wherein the image depicts a condition characteristic in a machine travel direction and a condition characteristic in a machine crosswise direction,

wherein the condition characteristic in the machine travel direction and the condition characteristic in the machine crosswise direction *are depicted in the form of at least one of contour lines and color transitions*.

The Examiner asserts that KOMULAINEN discloses these features in Figures 1 – 4. Applicants respectfully disagree.

KOMULAINEN discloses detecting discrete points of thermal deviation on a fiber web, roller or moving texture caused by periodic recurring phenomena of debris on, or damage to, elements of the apparatus.

While KOMULAINEN discloses detecting discrete defects in the surface of wires or belts by thermal deviation on a thermal chart, Applicants submit that KOMULAINEN does not disclose the condition characteristic in the machine travel direction and the condition characteristic in the machine crosswise direction are depicted in the form of one of contour lines and color transitions, as recited in at least independent claim 1. Rather, the apparatus of KOMULAINEN, because it is aimed at detecting discrete points of recurring phenomena caused by debris on, or damage to, elements of the apparatus, depicts these recurring phenomena as discrete points of defect on the thermal chart.

As KOMULAINEN averages the thermal chart results, based on different cycle times of the different elements of the apparatus, to ascertain what specific element is causing the defect, the problem (defect/damage) must be recurring phenomena. Further, since KOMULAINEN is concerned only with identifying discrete points of recurring phenomena caused by debris on, or damage to, elements of the apparatus, there is no disclosure of depicting a condition characteristic of the belt with contour lines or color transitions. Furthermore, Applicants submit that as nonrecurring phenomena

are essentially disregarded, there is no arguable disclosure or suggestion for depicting the belt condition with contour lines or color transitions. Further, such a depiction would not allow a user to ascertain the cause of the recurring phenomena on the thermal chart, and thus the disclosure of KOMULAINEN teaches away from the present invention.

Therefore, KOMULAINEN does not contain each and every element of the claim, and does not anticipate the claimed invention.

Dependent Claims 2 – 6, 8 – 25, 27 and 32

Applicants respectfully submit that claims 2 – 6, 8 – 25, 27 and 32 depend from an allowable independent claim, and are allowable based upon the allowability of the independent claim, and because these claims recite additional subject matter to further define the instant invention.

Additionally, Applicants submit that KOMULAINEN does not disclose the predetermined property is belt permeability, as recited in claim 5. While KOMULAINEN discloses detecting defects, i.e., discrete points of periodic recurring phenomena of debris on, or damage to, elements of the apparatus, Applicants submit that KOMULAINEN does not disclose the predetermined property of the belt is permeability, and certainly no disclosure for depicting belt permeability with contour lines or color transitions. The Examiner asserts that KOMULAINEN, by detecting a local blockage of a texture used for drying the web, discloses the condition data represents at least one predetermined property of the belt, wherein the at least one predetermined property of the belt is permeability. Applicants submit that, while KOMULAINEN discloses recording recurring data representative of defects of a belt, there is no teaching or

arguable suggestion of recording permeability. While a local blockage may affect permeability, Applicants submit that detection of local blockages is not a determination of belt permeability. Therefore, KOMULAINEN does not contain each and every element of the claim, and does not anticipate the claimed invention.

Furthermore, Applicants submit that KOMULAINEN does not disclose the at least two-dimensional image comprises a three-dimensional image, as recited in claim 8. The Examiner did not specifically address this claim in the rejection under 35 U.S.C. § 102(e). Applicants submit that KOMULAINEN discloses a two-dimensional image, as shown in Figure 2, and that a two-dimensional image is not a three-dimensional image. Therefore, KOMULAINEN does not contain each and every element of the claim, and does not anticipate the claimed invention.

Moreover, Applicants submit that KOMULAINEN does not disclose the three-dimensional image is depicted in the form of at least on of a three-dimensional grid and a three-dimensional waterfall diagram, as recited in claim 9. The Examiner did not specifically address this claim in the rejection under 35 U.S.C. § 102(e). Applicants submit that KOMULAINEN discloses a two-dimensional image, as shown in Figure 2, and that a two-dimensional image is not a three-dimensional grid or a three-dimensional waterfall diagram. Therefore, KOMULAINEN does not contain each and every element of the claim, and does not anticipate the claimed invention.

Furthermore, Applicants submit that KOMULAINEN does not disclose the belt rotation is recorded via at least one marking provided on or in the belt and a detection of a corresponding trigger signal. The Examiner did not point to where in KOMULAINEN this was purportedly disclosed. Applicants submit that KOMULAINEN discloses the use

of a pulse sensor (15) arranged in the center of a roll (14) to determine the rate of propagation of the web. Alternatively, KOMULAINEN discloses the use of a data processor to obtain data about the speed of motion required for synchronization. However, Applicants submit that neither if these arrangements disclose the belt rotation is recorded via at least one marking provided on or in the belt and a detection of a corresponding trigger signal. Therefore, KOMULAINEN does not contain each and every element of the claim, and does not anticipate the claimed invention.

Additionally, Applicants submit that KOMULAINEN does not disclose the belt includes at least one of an optical marking and a hole marking, as recited in claim 27. The Examiner did not point to where in KOMULAINEN this was believed to be disclosed. As set forth above, Applicants submit that KOMULAINEN discloses the use of a pulse sensor (15) arranged in the center of a roll (14) to determine the rate of propagation of the web. Alternatively, KOMULAINEN discloses the use of a data processor to obtain data about the speed of motion required for synchronization. However, Applicants submit that neither if these arrangements disclose the belt rotation is recorded via at least one marking provided on or in the belt and a detection of a corresponding trigger signal. Therefore, KOMULAINEN does not contain each and every element of the claim, and does not anticipate the claimed invention.

Moreover, Applicants submit that KOMULAINEN does not disclose a plurality of condition sensors are assigned to a scanner, as recited in claim 32. The Examiner did not point to where in KOMULAINEN this was believed to be disclosed. Applicants submit that, while KOMULAINEN discloses a scanner that may be placed in different or multiple places, KOMULAINEN only discloses one condition sensor assigned to the

scanner—a thermal condition sensor. Therefore, KOMULAINEN does not contain each and every element of the claim, and does not anticipate the claimed invention.

Traversal of Rejection under 35 U.S.C. § 103(a)

1. Over Komulainen

Applicants traverse the rejection of claims 8 and 9 under 35 U.S.C. § 103(a) as being unpatentable over KOMULAINEN.

The Examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach all the claim limitations. MPEP § 2142.

The Examiner asserts that KOMULAINEN discloses all of the limitations of the claim, but for the at least two-dimensional image comprising a three-dimensional image, as recited in claim 8, and the three-dimensional image depicted in the form of at least on of a three-dimensional grid and a three-dimensional waterfall diagram, as recited in claim 9. The Examiner, however, asserts that it would have been obvious to one skilled in the art at the time of the invention that the two-dimensional image of KOMULAINEN performs the same function and provides the same data in a working format as does a three-dimensional image. Applicants respectfully disagree.

For the reasons set forth above, KOMULAINEN fails to provide any teaching or suggestion of the combination of features recited in at least independent claim 1.

Further, Applicants respectfully submit that claims 8 and 9 depend from an allowable independent claim, and are allowable based upon the allowability of the independent claim, and because these claims recite additional subject matter to further define the instant invention.

Additionally, Applicants submit that the two-dimensional image of KOMULAINEN does not perform the same function or provide the same data in a working format as does a three-dimensional image. The thermal chart of KOMULAINEN discloses two variables i.e., the width and the length of a defect on the web. A three-dimensional image, and a three-dimensional image in the form of a three-dimensional grid or three-dimensional waterfall diagram, require three variables, by definition. Furthermore, as the two-dimensional image of KOMULAINEN does not have a third variable, it cannot perform the same function or provide the same data as does a three-dimensional image.

Moreover, Applicants note that KOMULAINEN fails to provide any teaching of suggestion of a three-dimensional diagram or provide any amplitude information in order to base a third dimension for plotting. Further, KOMULAINEN fails to suggest the requisite motivation or rationale for modifying KOMULAINEN in any manner that would render unpatentable the features of claims 8 and 9. The Examiner has not identified or stated any motivation or rationale for modifying KOMULAINEN, as required for a proper rejection under 35 U.S.C. § 103(a). Applicants respectfully request that the Examiner specifically identify a proper motivation for modifying KOMULAINEN if this rejection is maintained.

Accordingly, Applicants submit that the rejection is improper and should be withdrawn.

2. Over Komulainen in view of Lausier

Applicants traverse the rejection of claims 26 and 28 – 31 under 35 U.S.C. § 103(a) as being unpatentable over KOMULAINEN in view of US 5,960,374 issued to Lausier [hereinafter LAUSIER].

Applicants submit LAUSIER fails to teach or suggest the subject matter noted above as deficient in KOMULAINEN. As neither applied document teaches or suggests the above-noted features of at least independent claim 1, Applicants submit no proper combination of these documents can render unpatentable the instant invention.

Further, Applicants respectfully submit that claims 26 and 28 – 31 depend from an allowable independent claim, and are allowable based upon the allowability of the independent claim, and because these claims recite additional subject matter to further define the instant invention.

Furthermore, Applicants submit that neither KOMULAINEN nor LAUSIER teach or suggest the optical marking comprising a wire woven into the belt, as recited in claim 28. However, the Examiner asserts that the trigger of KOMULAINEN obviously performs the same function as would a trigger having a wire woven in the belt. As KOMULAINEN does not disclose a trigger, but rather a pulse sensor, as set forth above, Applicants assume that the Examiner was referring to the trigger of LAUSIER. As stated above, LAUSIER does not disclose the optical marking comprising a wire woven into a belt, but rather discloses a trigger as part of a roller. Accordingly, Applicants submit that the rejection is improper and should be withdrawn.

Moreover, Applicants submit that neither KOMULAINEN nor LAUSIER teach or suggest the at least one trigger sensor positioned to detect the belt marking, as recited in claim 29, and wherein the at least one trigger emits a trigger signal, as recited in claim 30. However, the Examiner asserts that LAUSIER discloses the trigger sensor positioned to detect the belt marking. As discussed above, Applicants submit that neither KOMULAINEN nor LAUSIER teach or suggest a belt marking, and so it logically follows that neither KOMULAINEN nor LAUSIER teach or suggest at least one trigger sensor positioned to detect a belt marking.

Moreover, Applicants note that as LAUSIER fails to provide any teaching of suggestion of at least one trigger sensor positioned to detect the belt marking, LAUSIER fails to suggest the requisite motivation or rationale for modifying KOMULAINEN in any manner that would render unpatentable the features of claims 29 and 30. The Examiner has not identified or stated any motivation or rationale for modifying KOMULAINEN, as required for a proper rejection under 35 U.S.C. § 103(a). Applicants respectfully request that the Examiner specifically identify a proper motivation for modifying KOMULAINEN if this rejection is maintained.

Accordingly, Applicants submit that the rejection is improper and should be withdrawn.

Additionally, Applicants submit that neither KOMULAINEN nor LAUSIER teach or suggest at least one trigger sensor is used on each side of the paper or cardboard machine, as recited in claim 31. However, the Examiner asserts it would have been obvious to have a trigger on each side of the machine.

Moreover, Applicants note that as LAUSIER fails to provide any teaching of suggestion of at least one trigger sensor is used on each side of the paper or cardboard machine, LAUSIER fails to suggest the requisite motivation or rationale for modifying KOMULAINEN in any manner that would render unpatentable the features of claim 31. The Examiner has not identified or stated any motivation or rationale for modifying KOMULAINEN, as required for a proper rejection under 35 U.S.C. § 103(a). Applicants respectfully request that the Examiner specifically identify a proper motivation for modifying KOMULAINEN if this rejection is maintained.

Accordingly, Applicants submit that the rejection is improper and should be withdrawn.

Newly Submitted Claims are Allowable

Applicant has added new claims 39 – 41 for consideration by the Examiner. As stated above, new claim 39 is original claim 5 in independent form, new claim 40 corresponds to original claim 7 and new claim 41 corresponds to original claim 8.

Claim 39 recites, in pertinent part:

> recording data related to a condition of the belt; and
> creating an at least two-dimensional image of the belt condition from the recorded condition data,
> wherein the image depicts a condition characteristic in a machine travel direction and a condition characteristic in a machine crosswise direction,
> wherein the condition data represent at least one predetermined property of the belt,
> *wherein the at least one predetermined property of the belt is permeability.*

The Examiner asserts that KOMULAINEN discloses these features in Figures 1 – 4, column 6, lines 50-59 and column 9, line 35 to column 10, line 65. Applicants respectfully disagree.

As set forth above, KOMULAINEN discloses detecting discrete points of thermal deviation on a fiber web, roller or moving texture caused by periodic recurring phenomena of debris on, or damage to, elements of the apparatus.

While KOMULAINEN discloses detecting defects, i.e., discrete points of periodic recurring phenomena of debris on, or damage to, elements of the apparatus, Applicants submit that KOMULAINEN does not disclose the condition data represents at least one predetermined property of the belt, wherein the at least one predetermined property of the belt is permeability. The Examiner asserts that KOMULAINEN, by detecting a local blockage of a texture used for drying the web, discloses the condition data represents at least one predetermined property of the belt, wherein the at least one predetermined property of the belt is permeability. Applicants submit that, while KOMULAINEN discloses recording recurring data representative of defects of a belt, there is no teaching or arguable suggestion or recording permeability. While a local blockage may affect permeability, Applicants submit that detection of local blockages is not a determination of belt permeability. Therefore, KOMULAINEN does not contain each and every element of the claim, and does not anticipate the claimed invention.

Accordingly, Applicants respectfully request that claims 39 – 41 be indicated as allowable.

Application is Allowable

Thus, Applicant respectfully submits that each and every pending claim of the present invention meets the requirements for patentability under 35 U.S.C. §§ 102(e) and 103(a), and respectfully requests the Examiner to indicate allowance of each and every pending claim of the present invention.

Authorization to Charge Deposit Account

The undersigned authorizes the charging of any necessary fees, including any extensions of time fees required to place the application in condition for allowance by Examiner's Amendment, to Deposit Account No. 19-0089 in order to maintain the pendency of this application.

CONCLUSION

In view of the foregoing, it is submitted that none of the references of record, either taken alone or in any proper combination thereof, anticipate or render obvious the Applicant's invention, as recited in claims 1 – 6, 8 – 32 and 39 – 41. The applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all of the claims therein are respectfully requested and now believed to be appropriate.

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